

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the following discussion and present amendment, is respectfully requested.

Claims 1-17, 53, 56, 59, 62-89, and 116-142 are presently active in this case. Claims 1, 5, 15, 53, 56, 59, 62, 64, 73, 88, 89, 116-122, 127, and 138-140 are amended. Claims 141 and 142 are newly added. Support for the amendments to Claims 1, 53, 56, 59, 62, 73, 88, 89, 127, and 138 can be found in Figs. 1, 3, 8, 11, 15, 16, 18, and 23, and at page 27, line 24- page 28, line 5, for example. Claims 15, 64, 116-122, 139, and 140 are amended to address minor informalities. Claims 5, 67, 71, and 72 are placed in independent form. Support for new Claims 141 and 142 can be found at page 24, lines 21-22, for example. No new matter is added.

In the outstanding Office Action, the allowability of newly added Claims 127 and 138 incorporating in independent form subject matter previously indicated as allowable was withdrawn. Claim 59 was objected to for reciting "image carries" instead of "image carrier." Claims 1-4, 6-8, 53, and 56 were rejected under 35 U.S.C. § 102(b) as anticipated by Montfort et al. (U.S. Patent No. 5,842,102, hereafter "Montfort"). Claim 12 was rejected under 35 U.S.C. § 103(a) as obvious over Montfort in view of Muramatsu (Japanese Patent No. 7-337042, hereafter "Muramatsu"). Claim 59 was rejected under 35 U.S.C. § 103(a) as obvious over Montfort in view of Matsuguma et al. (U.S. Patent Pub. 2003/0063928, hereafter "Matsuguma"). Claims 62, 63, 69, 70, 73, 74, 86-88, 127, and 138 were rejected under 35 U.S.C. § 103(a) as obvious over Montfort in view of Nakamura et al. (Japanese Patent No. 2002-268490, hereafter "Nakamura"). Claims 53 and 59 were rejected under 35 U.S.C. § 103(a) as obvious over Matsuguma in view of Montfort. Claims 88 and 89 were rejected under 35 U.S.C. § 103(a) as obvious over Matsuguma in view of Montfort and

further in view of Nakamura. Claims 5, 9-11, 13-17, 64-68, 71, 72, and 75-85 were indicated as reciting allowable subject matter. Claims 116-126, 128-137, 139, and 140 were allowed.

Applicants note with appreciation the indication that Claims 5, 9-11, 13-17, 64-68, 71, 72, and 75-85 recite allowable subject matter and that Claims 116-126, 128-137, 139, and 140 are allowed.

At the outset, Applicants note with appreciation the courtesy of a personal interview granted by Primary Examiner Susan Lee to Applicants representatives. The personal interview was held on February 7, 2006, and is summarized below.

Regarding the objection to Claim 59, Claim 59 is amended to replace the term "image carries" with "image carrier" where appropriate. Accordingly, Applicants respectfully submit that the objection to Claim 59 is overcome.

Regarding the rejection of Claims 1-4, 6-8, 53, and 56 as anticipated by Montfort, that rejection is respectfully traversed by the present response.

Amended Claim 1 recites, in part:

A cleaning device for cleaning toner from an image carrier that carries a toner image made of toner, comprising:

a blade member having an end, wherein the end touches a surface of the image carrier and scrapes off toner from the surface;

a vibratable member configured to flex in a direction of flexure, and to which the blade member is fixed; and

a vibrating unit that vibrates the vibratable member in the direction of flexure so that the end of the blade member does not curl toward the image carrier.

Accordingly, the vibratable member to which the blade member is attached is configured to flex in a particular direction. Further, the vibrating unit makes the vibratable member vibrate in the direction of flexure as shown by the hollow arrow in Applicants' Fig. 3.

As discussed in the personal interview, Montfort describes a vibrating movement without flexure of any vibratable member. As shown in Figs 3, 4A, 4B, 5, and 6, Montfort

describes a waveguide (84) vibrated by an electric transducer (102) in the direction of the arrow (87). Montfort does not disclose that the waveguide (84) flexes, much less that the waveguide (84) is made to vibrate in a direction of flexure by a vibrating unit. Rather, the waveguide (84) merely pushes the cleaning blade (91) back and forth along the axis of the waveguide (84) without any flexure of the waveguide (84). Accordingly, Applicants respectfully submit that the rejection of Claim 1 is overcome.

Regarding the rejection of dependent Claim 12 as obvious over Montfort in view of Muramatsu, that rejection is respectfully traversed by the present response. Claim 12 depends from amended Claim 1, and therefore, patentably distinguishes over Montfort for at least the same reasons as amended Claim 1.

Muramatsu fails to remedy the deficiency discussed above regarding Montfort. Muramatsu describes an ultrasonic actuator with piezoelectric elements (121) and (122) that generate a traveling wave in the resilient body (111). However, Muramatsu is devoid of any description of a vibrating member to which a blade is attached, much less that the vibrating member is configured to flex in a direction of flexure or that a vibrating unit vibrates the vibrating member in the direction of flexure. Accordingly, Applicants respectfully submit that dependent Claim 12 patentably distinguishes over the cited references for at least the reasons discussed above.

Regarding the rejection of Claim 59 as obvious over Montfort in view of Matsuguma, that rejection is respectfully traversed by the present response. Amended Claim 59 recites substantially similar features to those discussed above regarding amended independent Claim 1. Accordingly, Applicant respectfully submits that amended independent Claim 59 patentably distinguishes over Montfort for at least the same reasons as amended Claim 1.

Matsuguma fails to remedy the deficiencies discussed above regarding Montfort. Matsuguma describes a cleaning means (6) "constituted by rubber blades and sheet metal."¹ Nowhere does Matsuguma disclose that any part of the cleaning means vibrates, and therefore, Matsuguma cannot disclose a vibrating unit that vibrates the vibratable member in a direction of flexure. Accordingly, Applicants respectfully submit that no reasonable combination of Montfort with Matsuguma discloses all of the features of amended independent Claim 59.

Regarding the rejection of Claims 62, 63, 69, 70, 73, 74, 86-88, 127, and 138 as obvious over Montfort in view of Nakamura, that rejection is respectfully traversed by the present response.

Amended independent Claims 62, 73, 88, 127, and 138 recite substantially similar features to those discussed above regarding independent Claim 1. Accordingly amended independent Claims 62, 73, 88, 127, and 138 patentably distinguish over Montfort for at least the same reasons as amended independent Claim 1.

The outstanding Office Action relies on Nakamura for the feature of a toner having sphericity of 0.96 to 1.00. However, Nakamura does not disclose a vibrating member, and therefore cannot remedy the deficiencies of Montfort regarding a vibrating member configured to flex in a direction of flexure and that is vibrated in the direction of flexure by a vibrating unit. Accordingly, Applicants respectfully submit that amended independent Claims 62, 73, 88, 127, and 138 patentably distinguish over the cited references for at least the reasons discussed above.

Claims 63, 69, and 70 depend, directly or indirectly, from amended independent Claim 62, and Applicants respectfully submit that dependent Claims 63, 69, and 70

¹ Matsuguma, at page 4, paragraph [0062].

patentably distinguish over the cited reference for at least the same reasons as independent Claim 62.

Claims 74, 86, and 87 depend, directly or indirectly, from amended independent Claim 73. Accordingly, Applicants respectfully submit that Claims 74, 86, and 87 patentably distinguish over any reasonable combination of Montfort and Nakamura for at least the same reasons as discussed above regarding independent Claim 73.

Regarding the rejection of Claims 53 and 59 as obvious over Matsuguma in view of Montfort, Applicants respectfully submit that no reasonable combination of Matsuguma and Montfort would include all of the limitations of Claims 53 and 59. As discussed above regarding the rejection of independent Claim 59 as obvious over Montfort in view of Matsuguma, no reasonable combination of the cited references includes all of the features recited in independent Claim 59. Claim 53, like Claim 59, recites the feature of a vibratable member configured to flex in a direction of flexure and which is made to vibrate in the direction of flexure by a vibrating unit. Accordingly, Applicants respectfully submit that amended Claim 53 patentably distinguishes over the cited references for at least the same reasons as amended independent Claim 59.

Regarding the rejection of independent Claims 88 and 89 as obvious over Matsuguma in view of Montfort and Nakamura, that rejection is respectfully traversed by the present response.

Independent Claims 88 and 89 each recite substantially similar features to those discussed above regarding amended independent Claim 1. As discussed above, none of Matsuguma, Montfort, and Nakamura discloses a vibrating member configured to flex in a direction of flexure and that is vibrated in the direction of flexure by a vibrating unit. Accordingly, Applicants respectfully submit that each of amended Claims 88 and 89

patentably distinguishes over the cited references for at least the same reasons as amended Claim 1.

Regarding newly added independent Claim 141, Applicants respectfully submit that no reasonable combination of the cited references would disclose all of the features of newly added Claim 141 because Montfort, the primary reference in the above-discussed obviousness rejections, teaches away from such a combination. For example, independent Claim 141 recites the feature of a blade member which is **made of elastic material** having an end, wherein **the end touches a surface of the image carrier** and scrapes off toner from the surface. Claim 141 further recites that a vibrating unit vibrates the vibratable member so that the end of the blade member does not curl toward the image carrier.

In contrast, Montfort states:

However, in this embodiment, the softer blade material dampens the ultrasonic energy and cleaning is not enhanced.²

Montfort further states:

The frictional measurements in TABLE 1 suggest that the harder steel material provides better vibrational energy than the plastic material tested. There is an initial reluctance to the use of a steel blade on a photoreceptor because of the damage a steel cleaning blade can cause to the photoreceptor surface. However, the vibrating steel tip does not make intimate contact with the photoreceptor thereby avoiding damage and/or scratching of the photoreceptor by the steel blade.³

Accordingly, Montfort, in its initial embodiment, describes that it uses a metal blade. The metal blade inherently does not curl, and thus, there is not a vibratable member that prevents the blade member from curling. Rather, in Montfort, it is the material of the blade itself that prevents curling.

In addition, Montfort states that the vibrating steel tip does not make intimate contact with the photoreceptor. The lack of contact between the photoreceptor and steel tip avoids

² Montfort, col. 4, lines 53-54 and Fig. 2.

³ Montfort, col. 5, lines 31-38.

damage and/or scratching of the photoreceptor blade. Accordingly, Montfort does not disclose, and in fact teaches away from a blade member which is made of elastic material having an end, wherein the end touches a surface of the image carrier as recited in new independent Claim 141.

Accordingly Applicants respectfully submit that newly added Claim 141 patentably distinguishes over any reasonable combination of the cited references for at least the reasons discussed above.

Newly added dependent Claim 142 depends from Claim 141 and is allowable for the same reasons as well as for its own features.

Consequently, in light of the above discussion, and in view of the present amendments, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Surinder Sachar
Registration No. 34,423
Attorneys of Record

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)